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August 22, 2014

VIA ECFS **EX PARTE**

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW, Room TW-A325
Washington, DC 20554

Re: Dockets 17-79

Dear Ms. Dortch:

This filing addresses issues stated by Mr. Henry G. Hultquist of AT&T in an *ex parte* letter dated February 23, 2018.[1] Marcus Spectrum Solutions, LLC ("MSS") makes this filing *pro se* in the public interest and not on behalf of any client, present or expected. MSS is the consulting practice of Dr. Michael J. Marcus, a retired FCC senior executive whose career specialized in technical policy, especially for innovative concepts.[2]

We fully agree with the Commission's continuing focus on removing regulatory barriers to wireless infrastructure investment. Local regulation is often overly burdensome and will not permit the rapid rollout needed to gain the economic and social benefits of 5G. But the industry also has to recognize the saying of that old cartoon "We have met the enemy and he is us!".[3]

The industry seeks to minimize or eliminate local government review of new infrastructure. In doing so it should recognize a social contract with the neighbors of infrastructure such as small base stations. This social contract should focus on making *reasonable* efforts to make the infrastructure compatible with its immediate environment. In this case "infrastructure" means BOTH antenna elements of small base stations was well as the electronics packages of them, described as "radios" in the document.

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[1] https://ecfsapi.fcc.gov/file/1022359695070/2018-02-23%20-%20ATT%20Ex%20Parte%20-%20WT%2017-79.pdf
[2] http://www.marcus-spectrum.com/qualifications.html
[3] http://www.marcus-spectrum.com/Blog/files/WirelessInfra417.html

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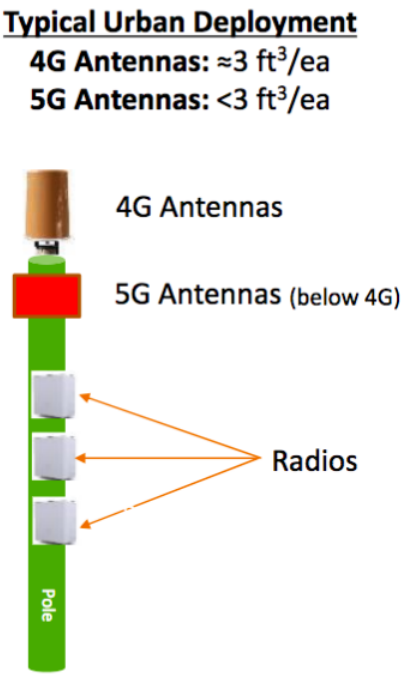

At left is a diagram from pdf. page 6 of the AT&T filing. It shows correctly that in small base stations today the antennas or radiating elements are modest in size and have a clean neat design. It then shows below them three "radios". These are shown as being vertically aligned identical units with no apparent connection to either the antennas or power source.

While in older base stations the tower and the multiple antennas on it were visually complex, new small base stations are very different as AT&T correctly notes. But this creates new potential for visual messiness - particularly if the carriers and their contractors do not pay attention.

We have previously filed in this proceeding several examples of needless messy small base station installations.[4] These will not be repeated here for the simple reason that in their filing AT&T itself provided a new example of a needlessly messy small base station:

The figure at left comes from pdf. p. 10 of the filing and apparently shows an AT&T installation in Indianapolis. Note the difference from the previous generic diagram which show the problems that can happen in the real world *unless carriers pay attention to visual details*. While the antenna is of a modest size and of pleasing design as before, there are apparently 4 "radios" hung on the utility pole. Probably these belong to different carriers although they *may* have all been installed by a common contractor such as Crown Castle.

• All 4 units on this pole had different form factors.

• Instead of being neatly aligned vertically as in the first diagram, 2 units are aligned vertically, one unit is mounted away from the tower about 90 degrees from the first unit, and the final unit is mounted below the side mounted unit but next to the pole.

[4] https://ecfsapi.fcc.gov/file/1040499420939/MSS%20comm%20NPRM%20draft.doc
https://ecfsapi.fcc.gov/file/1040713628649/4%207%2017%20ex%20parte.doc
https://ecfsapi.fcc.gov/file/10412164422072/4%2012%2017%20ex%20parte.pdf

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• Below the "radios" are 2 or 3 other units which may contain electric power metering and fusing for the "radios". In any case, this photo differs in many key ways from the previous AT&T diagram as do many actual small base stations today.

• While in this case all 4 units are approximately the same color and that color approximately matches the pole's color this is not a general industry practice.

• More importantly, note the "rat's nest" of black cables connecting the "radios" to the antennas. While this is not shown in any of the other AT&T pictures in the filing, it is a real practice in the real world today as our previous filings have documented. Improving this mess of cables required attention, but does not necessarily require major cost increases.

This is not the place for a tutorial on neat design. But basic building blocks include measuring the needed cable lengths better since cables are usually fabricated offsite for speedier installation. Tying cables together also eliminates visual clutter. Spiral cable wraps are inexpensive and allow a bundle of cables to have a consistent color that approximate the color of the pole that it is on. Providing a space where excess cable length can be coiled and out of sight. **But such details should not the subject of FCC or local government regulation!**

What is definitely needed here is carriers taking ownership of this problem themselves and committing to a new social contract with the neighbor of cell sites to pay more attention to the visual clutter created by their small base stations.

Several decades ago, Charles Ferris was FCC chairman. Chmn. Ferris had been general counsel to House Speaker Thomas P. "Tip" O'Neill and during his chairmanship FCC staffers and leaders were very familiar with Speaker O'Neill's famous aphorism "all politics is local".

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Today, FCC may have legislative authority to limit local government review of infrastructure design. But if industry proceeds to put up 100,000s of small base stations in every neighborhood and does not consistently pay attention to *reasonable* visual design concepts we may see a legislative test whether "Tip" is still correct today.

So we urge FCC to simplify the approval process for new infrastructure using preemption as needed. But we also urge FCC to have a real dialogue with industry on the need for better and consistent design oversight of actual small base stations so they look like most of the photos in the AT&T filing, not like the Indianapolis one or the ones in our previous filings in this proceeding.

We would like to take this opportunity to raise two small base station labeling issues:

1. **The need for label indicating a point of contact for a small base station.** We recall that several years ago the Verizon fios terminal equipment near our office was left with the door unlocked and open. We sought to report this to Verizon both as a good customer but also realizing that damage to the equipment in the metal container could adversely affect our Internet and other connectivity. The container was not labeled in any way and only because of industry experience did we know it contained fios equipment inside. Numerous calls to Verizon failed to find anyone interested in such "outside plant" equipment. Finally we took our FCBA directory and contacted someone in Verizon regulatory affairs and the problem was solved.

   Similarly most small base station equipment has not indication of ownership or responsible party either for the neighbors to report damage to it or to discuss its appearance. We suggest that it either become a voluntary industry practice or an FCC regulation that base stations without an FCC antenna registration have some contact information. This might be the carrier, the antenna contractor or a trade association.

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2. **RF safety labels for small base stations.** The small base station shown at left has two different RF safety labels on it, possibly from two different carriers. This adds to the visual clutter for no specific benefit. This type of label practice comes from inconsistent interpretation of FCC requirements that were written before the advent of small base stations. RF safety labels are one of the many issues being considered in Docket 13-84, but it is clear from looking at EDOCS that little or nothing is now going on in this complex and controversial proceeding.

Something is odd about requiring the same labeling for large base stations as for utility pole-based small base stations where the antenna is mounted above the medium voltage (~5 kV) power line and can only be reached by crawling through the powerline. The power line is clearly a much greater danger to anyone climbing the pole than the modest transmitter powering the antenna at the top.

Thus we urge FCC to work with industry and develop clear guidance and RF safety marking policy in the interim period until Docket 13-84 is resolved and new RF safety rules are in effect.

Sincerely,

/S/

Michael J. Marcus, Sc.D., F-IEEE
Director

cc: Rachael Bender
Louis Peraertz
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